

HANNO WILD ET AL.
USSN 08/765,012

Figure 1 is a map of vector RPR9-IL 4-Y124 4327.--

and then on the very next line insert the following heading at the left-hand margin:

--DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

[ADD SEQUENCE LISTING CHANGES]

IN THE CLAIMS:

Cancel claims 1 and 2 and substitute:

-3. A mutant human interleukin-4 (hIL-4) protein consisting of the amino acid sequence of wild-type hIL-4 with two modifications, wherein the first modification is that one or more of the amino acids occurring in the wild-type hIL-4 protein at positions 121, 124 or 125 is replaced by another natural amino acid, and the second modification is ~~that~~:

- ✓a) the N-terminus therein is modified;
- ✓b) the C-terminus therein is modified;
- c) potential glycosylation sites are deleted; and/or
- d) the protein is coupled to a non-protein polymer;

said mutant hIL-4 protein being an antagonist or partial agonist of wild-type hIL-4.--

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—4. A mutant hIL-4 protein according to claim 3, which consists of the amino acid sequence of wild-type hIL-4 with two modifications, wherein the first modification is ~~that~~ one or more of the amino acids occurring in the wild-type hIL-4 protein at positions 121, 124 or 125 is replaced by another natural amino acid, and the second modification is that:

- a) the N-terminus therein is modified by the deletion or insertion of one or more amino acids;
- b) the C-terminus therein is modified by the deletion or insertion of one or more amino acids;
- c) potential glycosylation sites are deleted; and/or
- d) the protein is coupled to a non-protein polymer selected from the group consisting of polyethylene glycol, polypropylene glycol and polyoxyalkylenes;

said mutant hIL-4 protein being an antagonist or partial agonist of wild-type hIL-4.—

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—5. A mutant hIL-4 protein according to claim 4, which consists of the amino acid sequence of wild-type hIL-4 with two modifications, wherein the first modification is that one or more of the amino acids occurring in the wild-type hIL-4 protein at positions 121, 124 or 125 is replaced by another natural amino acid, and the second modification comprises the N-terminus therein is modified by the insertion before the natural N-terminal histidine residue of an amino acid selected from the group consisting of alanine, glycine, proline, serine, threonine and valine, said mutant hIL-4 protein being an antagonist or partial

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agonist of wild-type hIL-4.--

-6. A mutant hIL-4 protein according to claim 5, wherein said second modification further comprises:

- a) deletion of the potential glycosylation sites at positions 38 and/or 105 by replacement of asparagine in these positions by aspartic acid; and/or
- b) coupling of the protein to polyethylene glycol.--

-7. ^{com} A therapeutic agent comprising:

- a) a mutant human interleukin-4 (hIL-4) protein according to claim 3; and
- b) a physiologically acceptable carrier.--

-8. A therapeutic agent comprising:

- a) a mutant human interleukin-4 (hIL-4) protein according to claim 4; and
- b) a physiologically acceptable carrier.--

-9. A therapeutic agent comprising:

- a) a mutant human interleukin-4 (hIL-4) protein according to claim 5; and

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b) a physiologically acceptable carrier.--

-10. A therapeutic agent comprising:

- a) a mutant human interleukin-4 (hIL-4) protein according to claim 6; and
- b) a physiologically acceptable carrier.--

-11. A method of antagonizing or partially agonizing the effect of human interleukin-4 (hIL-4) comprising contacting cells expressing the hIL-4-receptor with an antagonistic or partially agonistic effective amount of a mutant hIL-4 protein according to claim 3.--

-12. A method of antagonizing or partially agonizing the effect of human interleukin-4 (hIL-4) comprising contacting cells expressing the hIL-4-receptor with an antagonistic or partially agonistic effective amount of a mutant hIL-4 protein according to claim 4.--

-13. A method of antagonizing or partially agonizing the effect of human interleukin-4 (hIL-4) comprising contacting cells expressing the hIL-4-receptor with an antagonistic or partially agonistic effective amount of a mutant hIL-4 protein according to claim 5.--

-14. A method of antagonizing or partially agonizing the effect of human interleukin-4 (hIL-4) comprising contacting cells expressing the hIL-4-receptor with an antagonistic or partially agonistic effective amount of a mutant

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hIL-4 protein according to claim 6.-